

Remarks – General

1. Request for Approval of Proposed Drawings, Correcting Typographic Errors

Applicants respectfully request permission to amend the Fogs 9 and 10 of record of the above application. The proposed changes are indicted in red on the photocopy of Figs 9 and 10 (see Appendix A) along with new drawings.

2. Amended Specifications, Correcting Typographic Errors and Informalities

By the above amendment, Applicants have amended the specifications to correct typographical errors and informalities, see Appendix B for a marked-up copy.

Page 1 was rewritten as follows:

- lines 9-14, replace with the following paragraph,

"This application is entitled to the benefits of provisional Patent Applications Ser. Nr 60/410,653 filed September 13, 2002; provisional Patent Applications Ser. Nr 60/210,877 filed June 9, 2000 and Patent Application Ser. Nr. 09/877,167 filed June 8, 2001, now patent 6,744,041 issued 2004 June 1; and provisional Patent Applications Ser. Nr 60/384,869 filed June 1, 2002, now Patent Application Ser. Nr. 10/499,147 filed May 31, 2003."
- adding the following heading at line 18, removing the word "fights" and replace with the word "rights".
- adding the following heading at line 20,

"SEQUENCE LISTING OR PROGRAM Not Applicable"

Page 2 was rewritten as follows:

- lines 1-2, replacing the heading with the following new heading,

"BACKGROUND OF THE INVENTION--FIELD OF INVENTION"

- lines 4-5, adding the phrase "atmospheric inlets, such as apertures and glass capillaries, leading into" before the phrase "mass spectrometer".
- lines 7-8, replacing the heading with the following new heading,

"BACKGROUND OF THE INVENTION"

- line 19, add the phrase "[such as the commercial product, TurboSpray by PE-Sciex]" after the word "ions".
- line 25, replacing the phrase "Bruins (1991)¹" with the phrase "Bruins (1991)".
- line 29 continuing onto page 3, line 1, replace the word "aperture" with the phrase "aperture,".

Page 3 was rewritten as follows:

- line 7, replacing the phrase "Prior et al (2002)²" with the phrase "Prior et al. (2002)".
- line 17-18, replace the word "is" with the word "are".
- line 19, replace the word "collisions" with the phrase "collisions,".
- line 19, adding the phrase "therefore" after the phrase "movement is".
- line 21-22, adding the phrase "[the situation at the entrance to apertures and capillaries]" after the phrase "field lines".
- line 23, adding the phrase "[as discussed below]" after the word "Inventors".

Page 4 was rewritten as follows:

- line 2, replacing the phrase "Goodley et a (1996)³" with the phrase "Goodley et al. (1996)".

- line 3, replacing the phrase "Apffel et al. (1998)⁴" with the phrase "Apffel et al. (1998)".
- line 7, adding the phrase "or needle" after the word "sprayer".
- line 14, replacing the phrase "Labowsky et al. (1985)⁵" with the phrase "Labowsky et al. (1985)".
- line 20, replacing the phrase "Schneider et al. (2001, 2002)⁶" with the phrase "Schneider et al. (2001, 2002)".
- line 27-28, replacing the phrase "Perel et al. (1982)⁷, Mahoney et al.⁸ (1987, 1990), and Lee et al.⁹ (1988, 1989)" with the phrase " Perel et al. (1982), Mahoney et al. (1987, 1990), and Lee et al. (1988, 1989)".
- line 28, replacing the phrase "5,838,002 (1998)¹⁰ and 6,278,111 B1 (2001)¹¹" with the phrase "5,838,002 (1998) and 6,278,111 B1 (2001)".
- line 29, replacing the phrase "98/07505 (1998)¹²" with the phrase "98/07505 (1998)".

Page 5 was rewritten as follows:

- line 8, replacing the phrase "Iribane et al. (1981)¹³" with the phrase "Iribane et al. (1981)".
- line 8, replacing the phrase "Covey et al. (1995)¹⁴" with the phrase "Covey et al. (1995)".
- line 10, replacing the phrase "Fenn et al. (1985)¹⁵" with the phrase "Fenn et al. (1985)".
- line 10-11, replacing the phrase "Russ et al. (2003)¹⁶" with the phrase "Russ et al. (2003)".

- line 12, replacing the phrase "Franzen (1998)¹⁷" with the phrase "Franzen (1998)".
- line 14, replacing the phrase "Olivares et al, (1987, 1998)¹⁸" with the phrase "Olivares et al. (1987, 1988)".
- line 16, replacing the phrase "Jarrell et al. (1994)¹⁹" with the phrase "Jarrell et al. (1994)".
- line 19, replacing the word "impact" with the word "impacted".
- line 20, replacing the phrase "Feng et al.²⁰ (2002)" with the phrase "Feng et al. (2002)".
- line 22, replacing the phrase "Alousi et al. (2002)²¹" with the phrase "Alousi et al. (2002)".
- line 27, replacing the phrase "Forssmann et al. (2003)²²" with phrase "Forssmann et al. (2003)".

Page 6 was rewritten as follows:

- line 7, replacing the phrase "applications 09/877,167 (2001)" with the phrase "6,744,041 (2004)".
- line 7-8, adding the phrase "patent application" after the word "and".
- line 11-12, adding the word "cross-sectional" after the word "small".
- lines 19-24 (fourth paragraph), replacing the paragraph with a new paragraph,

"(b) The lens and electrodes between the ion source and the inlet aperture in present use, with small electrical potential differences across the structure, are very inefficient in transferring ions from one region to another, leading to a small percentage [$<1\%$] of the ion current from the

ion source making it into the inlet aperture and the majority of the ion current impacting on the lens and the inlet aperture."

Page 7 was rewritten as follows:

- line 8, replace the word "lens" with the word lenses".
- lines 13-29, delete.

Page 8 was rewritten as follows:

- lines 1-30, delete.

Page 9 was rewritten as follows:

- lines 1-27, delete.

Page 10 was rewritten as follows:

- lines 1-2, replacing the heading "Objectives and Advantages" with the new heading "BACKGROUND OF INVENTION--OBJECTS AND ADVANTAGES".
- line 4, adding the phrase "and issued" after the word "co-pending".
- line 21, delete the word "a" and replace with the word "to".
- line 22, replace the word "lamine" with the word "laminated".
- lines 26-30, last paragraph, replace the entire paragraph with the following new paragraph,

"(g) to provide improved compression in funnel-well optical systems as described in our issued patent 6,744,041 (June 1, 2004), and our co-pending patent Applications Ser. Nr. 60/384,869 filed 2002 June 1, now Patent Application Ser. Nr. 10/499,147 filed 2003 May 31; and Ser. Nr. 60/384,864 filed 2002 June 1, now Ser. Nr. 10/449,344, filed 2003 May 30."

Page 11 was rewritten as follows:

- lines 11-20, add the new heading and following paragraph,

"SUMMARY

In accordance with the present invention a laminated lens comprises alternate layers of conducting electrodes and insulating bases with upstream or entrance aperture of the lens being larger than the exit aperture, with an optional high transmission surface upstream of the laminated lens for the introduction of gas-phase ions or charged particles at or near atmospheric pressure into atmospheric inlets, such as apertures and capillaries, to mass or ion mobility spectrometers. The voltages applied to conducting electrodes and high transmission surface are intended to provide a funnel-shaped potential surface of user definable initial and exit potentials relative to the source of ions and inlet into atmospheric inlets."

- lines 22-23, delete the sentence.
- line 24, add the word "laminated" before the word "lens".
- lines 27-28, add the phrase "(Lam-HTE)" after the word "element".

Page 12 was rewritten as follows:

- line 1, add the phrase "(Lam-HTE)" before the word "and".
- line 2, add the phrase "(Lam-HTE)" after the word "element".
- line 6, add the phrase "(Lam-HTE)" after the word "element".
- line 9, add the phrase "(Lam-HTE)" after the word "element".
- line 11, add the phrase "(Lam-HTE)" after the word "element".

- lines 13-14, add the phrase "(Lam-HTE)" after the word "element".
- line 18, add the phrase "(Lam-HTE)" after the word "element".
- line 20, add the phrase "(Lam-HTE)" after the word "element".
- line 22, add the phrase "(Lam-HTE)" after the word "element".

Page 13 was rewritten as follows:

- lines 34-36 (in double columns), delete the phrase "300 laminated high transmission element" and replace with the phrase "300 Lam-HTE".
- lines 50-51 (in double columns), delete the phrase "412 ring insulator" and replace with the phrase "414 second ring insulator".
- lines 52-53, delete the heading "DESCRIPTION--FIGS 1 THRU 4--PREFERRED EMBODIMENT" and replace with the new heading "DETAILED DESCRIPTION--FIGS 1 THRU 4--PREFERRED EMBODIMENT".

Page 15 was rewritten as follows:

- line 5, replace the word "which" with the phrase ", which".
- line 7, adding the phrase "or Lam-HTE" after the word "element".
- line 8, adding the phrase "(Lam-HTE)" after the word "element".
- line 10, adding the phrase "(Lam-HTE)" after the word "element".
- line 14, adding the phrase "(Lam-HTE)" after the word "element".
- line 23, adding the phrase "(Lam-HTE)" after the word "element".
- line 26, adding the phrase "(direct current)" after the phrase "A DC".
- line 31, adding the phrase "(Lam-HTE)" after the word "element".

Page 16 was rewritten as follows:

- line 3, delete the word "composed" and replace with word "comprised".
- line 6, delete the word "addition" and replace with the word "addition,".
- line 28, adding the phrase "(Lam-HTE)" after the word "elements".
- line 30, adding the phrase "(Lam-HTE)" after the word "element".
- line 30, continuing onto page 17 line 1, deleting the phrase "with lamination on both sides".

Page 17 was rewritten as follows:

- lines 2-5, replace the first full paragraph with the following new paragraph,

Fig 9 shows a cross-sectional view of a lens composed of a hemispheric-shaped array of metal laminates adjacent to a planar-shaped high-transmission element **300** comprised of a single electrode **320** and an insulating base **330** partially removed; showing ion trajectories **162**.

- lines 6-7, replace the second paragraph with the following new paragraph,

Fig 10 shows a cross-sectional view of a similar lens adjacent to a hemispherical-shaped laminated high transmission element (Lam-HTE) **300**.

- lines 8-12, replace the third paragraph with the following new paragraph,

Fig 11 shows a cross-sectional view of a lens downstream of an atmospheric pressure matrix assisted laser desorption ionization (AP-MALDI) source including a laser **124**, a sample target **126**, and an ion-source **120**, without a high-transmission lens sandwich between the two. The cylindrical electrode **140** separated from cylindrical funnel wall **410** by

a ring insulator **172**.

- lines 13-30, delete.

Page 18 was rewritten as follows:

- lines 1-4, delete.
- lines 14-15, delete the phrase "laminated high transmission element" and replace with the word "Lam-HTE".
- line 21, delete the phrase "laminated high transmission element" and replace with the phrase "Lam-HTE".
- line 24-25, delete the phrase "laminated high transmission element" and replace with the phrase "Lam-HTE".

Page 19 was rewritten as follows:

- lines 4-5, delete the phrase "laminated high transmission element" and replace with the phrase "Lam-HTE".
- line 7, add the phrase ", both charged and uncharged" after the word "droplets".
- line 9, delete the phrase "high transmission element" and replace with the phrase "Lam-HTE".
- line 11, replace the word "Fig" with the word "Figs".

Page 20 was rewritten as follows:

- line 1, add the word "all" after the word "can".
- lines 4-5, delete the phrase "into and through aperture **60**" with the new phrase "into, through aperture **60**,".

- lines 6-27, add the following new heading and five paragraphs,

Advantages

From the description above, a number of advantages of our laminated lens become evident:

(a) With the establishment of a low electrostatic field between the laminated high transmission surface and the laminated lens, one can shape the electrostatic field lines with a small potential apply to either the metallic layers of the laminated lens or the underside of the laminated high-transmission surface, thus avoiding the need for larger potentials required in region where the electrostatic fields from high field ion sources dominate.

(b) With the establishment of a low electrostatic field between the high transmission surface and the laminated lens, electrostatic fields lines can be focused onto a small cross-sectional area at the inlet aperture, thus avoiding the need for larger inlet apertures used to get ions into the vacuum system of a mass spectrometer.

(c) The presence of a focusing element on the underside of the laminated high-transmission surface along with the individual laminates of the laminate lens will permit time-dependent adjustment of the electrostatic fields in front of the inlet aperture.

(d) The presence of a focusing element on the underside of the laminated high-transmission surface and the potentials of the individual laminates of the laminated lens will permit the time-dependent transmission [or not] of ions through the high-transmission surface.

Page 21 was rewritten as follows:

- line 3, replace the word "a" with the word "the".
- line 22, add the phrase "and dimensions" after the word "number".

- line 22, add the phrase "both the" before the word "metal".
- line 22, add the phrase "and insulating bases" after the word "laminates".

3. Amended Claims 1, 4, 5, 6, 8, 11, 12, 15 and original claims 2, 3, 7, 9, 10, 13, 14, 16-19.

Applicants have amended claims 1, 4, 5, 6, 8, 11, 12, 15, removing informalities, typographic errors, and define the invention patentably over the prior art:

Amended independent claim 1 was rewritten as follows:

- line 4, replacing the word "consisting" with the word "comprised".

Original dependent claim 2

Original dependent claim 3

Amended dependent claim 4 was rewritten as follows:

- line 2, adding the word "pressure" after the word "atmospheric".

Amended dependent claim 5 was rewritten as follows:

- line 2, deleting the word "the" after the word "between".

Amended independent claim 6 was rewritten as follows:

- line 8, deleting the word "a" and replacing it with the word "an".
- line 10, replacing the word "consisting" with the word "comprised".
- line 30, deleting the word "to pass".

Original dependent claim 7

Amended dependent claim 8 was rewritten as follows:

- line 4, deleting the word "or" before the word discharge.

Original dependent claim 9

Original dependent claim 10

Amended dependent claim 11 was rewritten as follows:

- line 3, deleting the word "shapes" and replacing with the phrase "aides in shaping".
- line 4, add the word "said" before the word "laminated".
- line 4-5, deleting the phrase "between said high transmission surface".

Amended independent claim 12 was rewritten as follows:

- line 1, deleting the word "Method" and replacing it with the word "method".
- line 21, deleting the word "then" and replace with the word "than".

Original dependent claim 13

Original dependent claim 14

Amended independent claim 15 was rewritten as follows:

- line 1, deleting the word "Method" and replacing it with the word "method".

Original dependent claim 16

Original dependent claim 17

Original dependent claim 18

Original dependent claim 19

4. The Rejection of Independent Claims 1-19 Under the Judicially Created Doctrine of Obviousness-Type Double Patenting is Overcome

Claims 1-19 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over independent claims 1-21 of our copending Application No. 10/688,021 (Laminated tube for the transport of charged particles contained in a gaseous medium, filed 2003 November 17) in view of US patent 6,107,628 (Smith et al.). The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-19 only differ from claims 1-21 of our copending application in that the limitation wherein a stratified body consisting of a plurality of elements, said elements comprise alternating layers of metal electrodes and insulating material, each said electrode having successively smaller apertures wherein said apertures form an ion-funnel having an entry at largest aperture of first metal electrode and an exit at smallest aperture of last metal electrode, said smallest aperture forming inlet aperture into said analytical apparatus. Smith et al. teaches such limitations in the above references US patent (column 8 line 62, column 9 line 15). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Smith to have an ion funnel wherein the size and shape of the entry and exit apertures are defined as such that the acceptance region is larger than the emittance region for the purpose of controlling the size and shape of the beam or cloud of charged particles directed through the ion funnel (column 4 lines 5-57).

Applicants request reconsideration of provisional rejection under the judicially created doctrine of obviousness-type double patenting, as now applicable to currently amended claims 1, 4-6, 8, 11, 12, 15 and original claims 2, 3, 7, 9, 10, 13, 14, 16-19, for the following reasons:

- (1) The use of a stratified body in both this application and our copending application (10/688,021) are similar, as pointed out by the Examiner, but they are used in different manner. The device in our copending patent would be downstream of our ion funnel at the atmospheric-vacuum interface as shown Figs 1-3, 5-11 as

element 70 and aperture 60.

- (2) There is no justification, in Smith et al., or in any prior art separate from Applicants' disclosure, which suggest the use of a stratified or laminated body with attracting potentials in the shape of a funnel at or near atmospheric pressure to collect and focus ions into an aperture of an atmospheric interface of a mass spectrometer.
- (3) The novel physical features of claims 1-19 produce new, unexpected results and advantages, and hence are unobvious and patentable over these references.

The Reference and Difference of the Present Invention Thereover

Prior to discussing the above 3 points, Applicants will first discuss our copending application No. 10/449,344, improvements made to electrospray and atmospheric pressure chemical ionization source chambers by Whitehouse et al., and the general novelty of the present invention and its unobviousness over our these references.

Our copending application (App. No. 10/688,021), describes a stratified body consisting of a plurality of elements or laminated tube **sandwiched between regions at different pressures** for transferring ions created in the higher pressure region into the lower pressure regions by means of establishing a controlled DC potential gradient throughout the length of the tube until the viscous forces dominate in the downstream portions of the tube. This in contrast to our present application where our **laminated lens focuses ions at or near atmospheric pressure** by establishing favorable DC electric potentials between a laminated high-transmission surface and the laminated lens, transferring substantially all ions from dispersive sources through the high transmission surface, through the laminated lens, and into apertures or capillaries at the atmospheric-vacuum interface.

Thus our copending application (App. No. 10/688,021) is an interface between two different pressure regions, transferring ions and charged particles from one region to the other by means of controlling the DC potential down the length of the tube until the ions are in areas where the viscous forces dominated. This is distinct from our laminated

lens described in this application in that the ions are focused at or near atmospheric pressure and our lens can be used to introduce ions into the laminated tube described in our copending application. For example, Figs 1-3, 5-11 of our application show our laminated lens focusing ions into apertures and capillaries. Element 70 [and aperture 60] can be in some applications the laminated lens described in our copending application.

Smith et al (US Pat. No. 6,107,628) apparatus includes a similar stratified device but **operating at pressures of between 10⁻¹ millibar and 1 bar**, substantially below atmospheric pressure (column 4, lines 2-3). In addition, Smith et al.'s device is operated with a radio frequency (RF) field having a field-free zone down the axis of the device (column 4, lines 9-10). The Applicants' laminated lens is very distinct from Smith et al.'s device in that the Applicants' laminated lens functions to transfer and focus ions from an ionization source; first attracting ions to the upstream surface of a laminated high-transmission element with DC potentials, then by establishing a favorable electrical DC potential difference between the laminated high-transmission element and the lens ions are transferred through the high-transmission element, through the lens, and into an aperture leading into the vacuum system of a mass spectrometer—all taking place at or near atmospheric pressure. The Applicants' laminated lens can be used [in a similar fashion as described above for our laminated tube] to focus and introduce ions into apertures or capillaries that lead into Smith et al's device.

The Use of Laminated High-Transmission Lens In a Different Manner

As described above in our copending Application (No. 10/688,021) in view of Smith et al., that invention is stratified body comprised of a plurality of elements that is sandwiched between two regions, the ion source region at a higher pressure that utilizes DC potentials on the individual elements to transfer ions from the ion source region into a lower pressure region. The Applicants' laminated lens is used to focus ions through a laminated high-transmission element, through the lens, and into an aperture or capillary the entire process taking place at or near atmospheric pressure. Therefore applicants' device, even though they are comprised of similar parts to our copending application

and in view of Smith et al., is distinct from our copending application.

Smith et al. Does Not Show All of the Novel Physical Features of Independent Claims 1, 6, 12, and 15.

Smith et al.'s stratified body operates at pressures substantially below atmospheric pressure where the motion of ions is governed by inertia and electrical conditions [both DC and RF] well established in the fields of mass spectrometry and ion physics, while the Applicants' laminated lens operates at or near atmospheric pressure, pressures 100-1000X higher than Smith et al.'s device where the inertia of ions are damped and the motion of ions is governed by DC electric field lines, ions following the field lines, and viscous forces, concurrent and counter-current flow of gases. Therefore, Applicants device is distinct from Smith et al.

The Novel Physical Features of Independent Claims 1, 6, 12, and 15 Produce New and Unexpected Results and Hence Are Unobvious and Patentable Over These Under §103.

Also Applicants submit that the novel physical features of claims 1-19 are also unobvious and hence patentable under section §103 since they produce new and unexpected results over our copending Application No. 10/688,021 and Smith et al.

These new and unexpected results are the ability of Applicants' system to focus plasmas of ions and charged particles from dispersive sources at or near atmospheric pressure into small cross-sectional ion beams. This in turn results in transferring substantially all ions [or not] from the ion source through the openings of a laminated high-transmission surface by establishing favorable DC potentials at and across this surface and focusing these ions through our lens, and at a focal point of small cross-sectional area for delivery into apertures or the lumen of capillary tubes. Applicants' system therefore is vastly different to our copending application, Smith et al. or any other prior art. The novel features of Applicants' system which effect these differences are, as stated, clearly are recited in claims 1-19.

Original Dependent Claims 2 and 3 and Amended Dependent Claims 4 and 5 Are A Fortiori Patentable Over Our Copending Application (App. No. 10/688,021) and Smith et al.

Original dependent claims 2 and 3, and amended dependent claims 4 and 5 incorporate all the subject matter of the amended independent **claim 1** and add additional subject matter which makes them a fortiori and independently patentable over these references.

Original Dependent Claims 7, 9, and 10; and Amended Dependent Claims 8 and 11 Are A Fortiori Patentable Over Our Copending Application (App. No. 10/688,021) and Smith et al.

Original Dependent claims 7, 9, and 10; and amended dependent claims 8 and 11 incorporate all the subject matter of the amended independent **claim 6** and add additional subject matter which makes them a fortiori and independently patentable over these references.

Original Dependent Claims 13 and 14 Are A Fortiori Patentable Over Our Copending Application (App. No. 10/688,021) and Smith et al.

Original Dependent claims 13 and 14 incorporate all the subject matter of the amended independent **claim 12** and add additional subject matter which makes them a fortiori and independently patentable over these references.

Original Dependent Claims 16-19 Are A Fortiori Patentable Over Our Copending Application (App. No. 10/688,021) and Smith et al.

Original Dependent claims 16-19 incorporate all the subject matter of the amended independent **claim 15** and add additional subject matter which makes them a fortiori and independently patentable over these references.

Conclusions

For all of the reasons given above, Applicants submitted **new drawings** (Figs 9 and 10), amended **specifications** and **claims** that correct for **typographic errors** and

informalities, claims that comply with section 112 and 103, and request reconsideration of rejection of claims due obviousness-type double patenting:

- the prior art along our copending Application No. 10/688,021 and in View of Smith et al. do not show a stratified or laminated lens upstream of the atmospheric-vacuum interface of a mass spectrometer and downstream of a high-transmission element, where the electric potentials from the laminated lens along with the focusing elements of the high transmission element aid in the focusing of ions from dispersive sources through the high transmission element and into an aperture or capillary of the atmospheric-vacuum interface.
- in the case of our **copending patent (10/6880.21)**, the stratified element described in this application consist of a plurality of elements or a laminated tube **established between two regions, with the one region at a higher pressure than the second region**. Where some implementation of the invention is at the atmospheric-vacuum interface, downstream of our laminated lens and high transmission element which are at or near atmospheric pressure.
- in view of **Smith et al.**, even though they poses similar parts our laminated lens is at or near atmospheric pressure and operates with DC potentials, while Smith et al.'s device is operated with **RF and DC potentials** and at pressure substantially below atmospheric pressure—**100-1000X lower pressures**.
- the claimed distinctions are of patentable merit under section §103 because the new results of using a laminated lens downstream of a perforated laminated high transmission surface to establish a favorable electric potential across the perforated surface results in unexpected ability to pass substantially all, or not pass, the gas-phase ions from an ion source through the openings in the perforated high transmission surface and the unappreciated advantage of focusing ions from dispersive sources at or near atmospheric into openings of apertures or capillaries at the atmospheric-vacuum interface with a laminated lens downstream of a perforated surface that experts in the field of atmospheric ionization and sampling have not explored or conceived.

Accordingly, Applicants submits that this application is now in full condition for allowance, which action they respectfully solicit.

Conditional Request for Constructive Assistance

Applicants have amended the claims of this application so that they are proper, definite, and define novel structure, which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, Applicants respectfully request the constructive assistance and suggestions of The Examiner pursuant to M.P.E.P. § 2173.02 and. § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very Respectfully,



Edward W Sheehan

-----Applicant Pro Se-----

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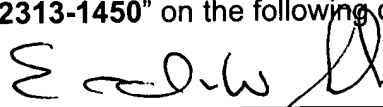
E-mails: E.W. Sheehan (ews@lcms.com) and R.C. Willoughby (ross@lcms.com)

Certificate of Mailing

EXPRESS MAIL

I hereby certify that this correspondence, and attachments, if any, will be deposited with the United States Postal Service by ~~Priority Mail~~, postage prepaid, in an envelope addressed to "**Box Non-Fee Amendments, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450**" on the following date: 2004 ~~July~~ JUNE 26

Inventor's Signature: _____



Edward W Sheehan, Applicant

Confirmation Received

ED052151641US); Date of Deposit 2004 ~~July~~ JUNE 26

Proposed Drawwings

Applicants respectfully request permission to amend the drawings, Fig 9 and 10, of this application (10/661,842). The proposed changes are indicated in red on the photocopies of Figs 9 and 10 thereof attached. New drawings are also attached.

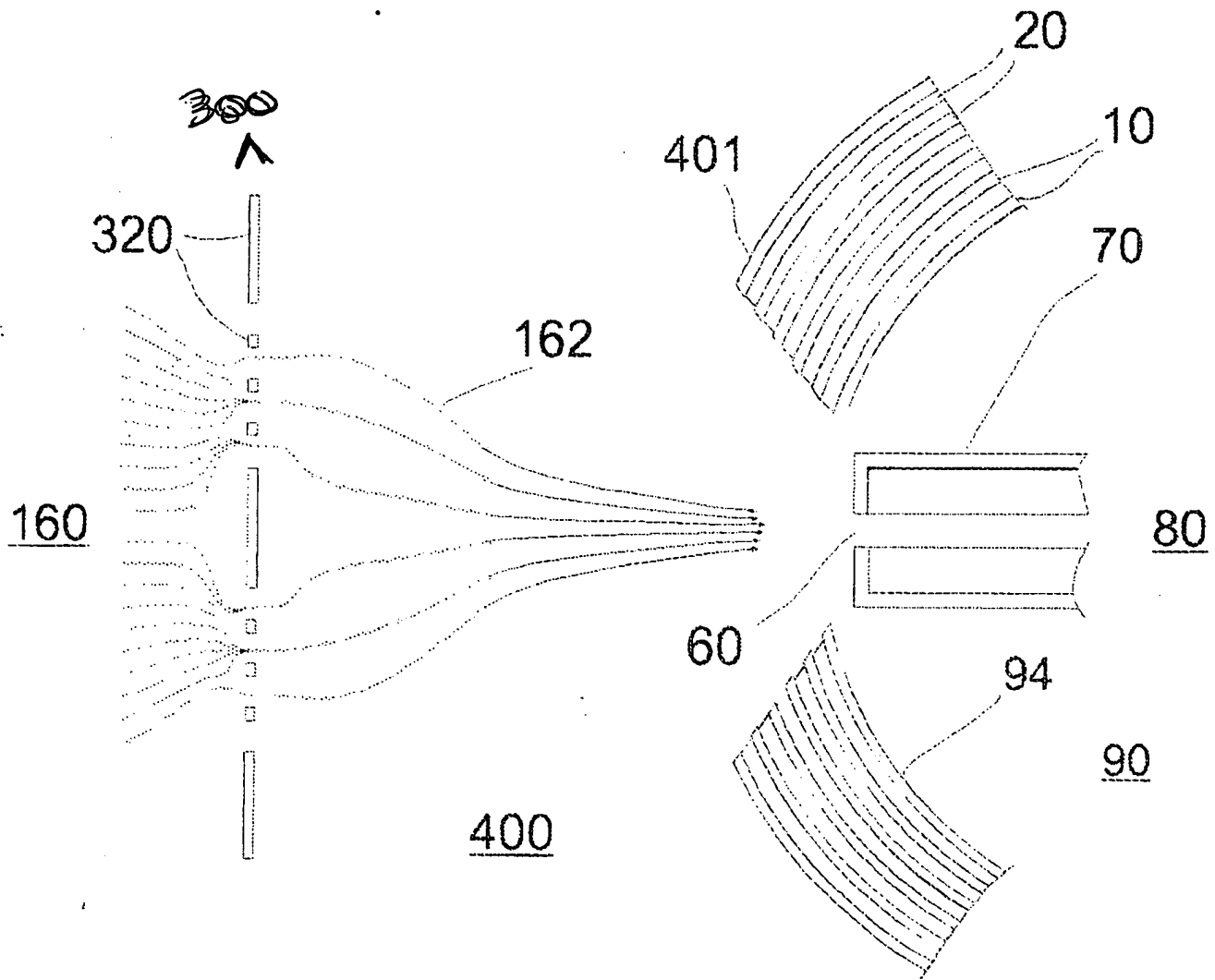


Fig. 9

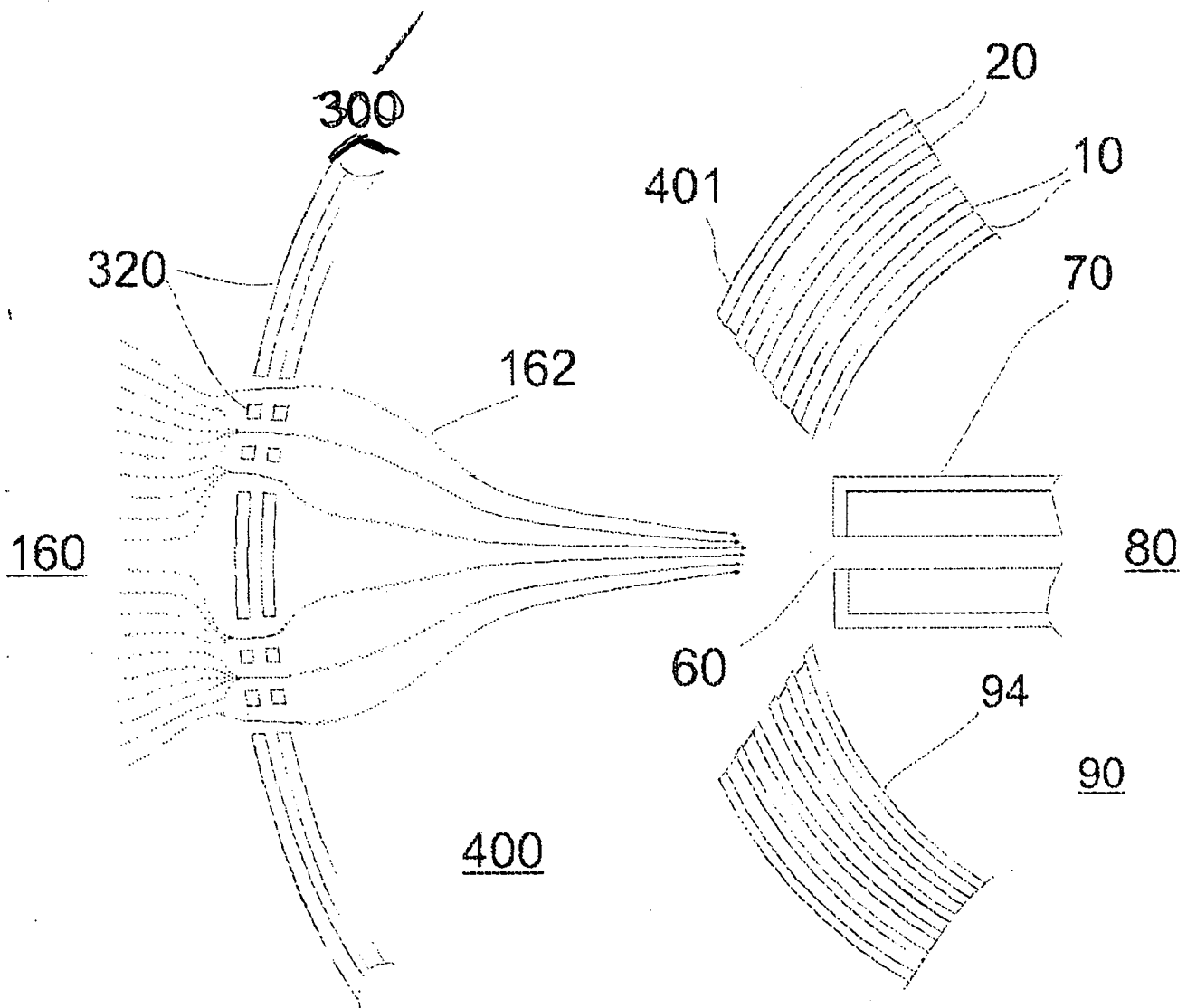


Fig. 10